

What is claimed is:

1. A hands-free device for use with a mobile phone and a vehicle seat headrest support structure, the device includes a speaker and a microphone assembly for use in combination with a connecting structure that couples the device to the connecting structure and simultaneously allows the connecting structure to engage the vehicle seat headrest support structure to secure the speaker and microphone assembly adjacent a head of an occupant of the seat to thereby allow the seat occupant to hear information communicated via the mobile phone and the speaker of the hands-free device while the occupant may simultaneously communicate via a microphone of the microphone assembly.

2. The hands-free device of Claim 1 wherein the connecting structure is a strap.

3. The hands-free device of Claim 2 wherein the strap includes a strap fastener secured to an end of the strap, and

the device has an elongated housing that includes a span portion that is in part coupled to the strap over a section of the strap to thereby ensure that the elongated housing of the device is physically secured to and stably aligned with the strap in a generally parallel relationship to the strap over the strap section.

4. The hands-free device of Claim 3 wherein the span portion is at least as long as the strap is wide.

5. The hands-free device of Claim 3 wherein the elongated housing portion that spans the strap section does so in such a manner that the device and strap are slidably secured relative to each other.

6. The hands-free device of Claim 5 wherein the strap section resides between the housing span portion and the elongated housing.

7. The hands-free device of Claim 6 wherein the housing span portion is structurally configured to provide a region thereof adapted to receive a mating portion of the fastener.

8. The hands-free device of Claim 7 wherein the module fastener is movable and is secured to the strap for movement on the strap,

the movable module fastener is provided with a mating fastener portion that allows the module fastener to be fastened to the region of the housing span portion that is adapted to receive the mating portion of the module fastener after the device, strap and strap fastener have been secured as a unit to the support structure of the headrest.

9. The hands-free device of Claim 8 wherein the fastener portion of the module is of the clip type and includes a clip portion thereof that engages the housing span portion to thereby secure the device and a portion of the strap to the module slidably secured to the strap.

10. The hands-free device of Claim 9 wherein the headrest support structure is comprised of a pair of separated support pillars that couple the headrest to the vehicle seat,

the strap extending from the strap fastener around a pillar, to and through the span portion of the device and then around the other pillar and through the movable module secured thereto and finally returning to a secured relationship with the strap fastener,

at the moment the movable module is fastened to the housing span portion, the strap then takes on an overall "8" shaped configuration around the support pillars, thereby establishing a highly stable physical relationship between the device, the strap and pillars behind the neck and head of a vehicle occupant.

11. The hands-free device of Claim 10 wherein the elongated housing is adapted to support the speaker in such a manner that sound from the speaker exits the housing proximate a neck and head region of the occupant.

12. The hands-free device of Claim 11 wherein the elongated housing is provided at one end thereof with a microphone assembly.

13. The hands-free device of Claim 12 wherein the microphone assembly is comprised of a flexible arm secured at one end thereof to the elongated housing and provide at the other end with a microphone, the flexible arm and microphone are manually positionable to allow an occupant in the vehicle seat to adjust the microphone location to be proximate the mouth of the occupant.

14. The hands-free device of Claim 2 wherein the strap includes a strap fastener secured to an end of the strap,  
the device is coupled to the strap in at least two locations on the device and cooperates with the strap and strap fastener to allow the device to be adjustably secured to the headrest support structure.

15. The hands-free device of Claim 14 wherein the strap fastener is a buckle.

16. The hands-free device of Claim 14 wherein the device has a housing cover that is adapted to receive the strap at the two locations in such a manner that the device and strap are slidably secured relative to each other and thereby causes the device to maintain a substantially parallel relationship along the cover of the device and a portion of the strap.

17 The hands-free device of Claim 16 wherein the housing cover is provided with a span portion thereof that is integral with and spans the two locations such that a section of the strap resides between the housing cover and the housing cover span portion.

18. The hands-free device of Claim 17 wherein the housing span portion is structurally configured to provide a region thereof adapted to receive a mating portion of a movable module fastener.

19. The hands-free device of Claim 18 wherein the movable module fastener is secured to the strap for movement along the strap,

the module fastener is provided with a mating fastener portion that allows the module to be fastened to the mating portion of the housing span portion after the device, strap and strap fastener have been secured to the support structure of the headrest.

20. The hands-free device of Claim 19 wherein the fastener portion of the module is of the clip type and includes a clip portion thereof that engages the housing span portion to thereby secure the device and a portion of the strap between the two locations to the module slidably secured to the strap.

21. The hands-free device of Claim 20 wherein the headrest support structure is comprised of a pair of separated support pillars that couple the headrest to the vehicle seat,

the strap extending from the strap fastener around a pillar, to and through a portion of the device at the two locations and then around the other pillar and through the movable module fastener secured thereto and finally to a secured relationship with the strap fastener,

at the moment the movable module is fastened to the housing span portion, the strap then takes on an overall "8" shaped configuration around the support pillars to thereby establish a highly stable physical relationship between the device, the strap and pillars behind a neck and head of a vehicle occupant.

22. The hands-free device of Claim 21 wherein in the housing cover is elongated and is adapted to support the speaker in such a manner that sound from the speaker exits the housing proximate a neck and head region of the occupant.

23. The hands-free device of Claim 22 wherein the microphone assembly is of the gooseneck type.

24. The hands-free device of Claim 22 wherein the microphone assembly is comprised of a flexible arm secured at one end thereof to the elongated housing and provided at the other end with a microphone, the flexible arm and microphone are manually positionable to allow an occupant in the vehicle seat to adjust the microphone location to be proximate the mouth of the occupant.

25. A hands-free device for use with a the mobile phone and a vehicle seat headrest support of the type that includes a pair of pillars that extends from headrest into a top portion of a vehicle seat, the device comprising:

a generally elongated shaped housing that includes therein a speaker, and is provided at one end thereof with a microphone assembly,

the elongated shaped housing is provided with a strap securing structure that accommodates a strap end that passes through the strap securing structure and around both pillars to be secured with a strap fastener at another end of the strap to thereby secure the device between the pillars and intermediate the headrest and a top of the seat.

26. The hands-free device of Claim 25 wherein the strap securing structure is configured to couple a region of the strap in at least two locations on the device to the strap.

27. The hands-free device of Claim 26 wherein the strap securing structure at the two locations allows the device to be slidably secured relative to the strap and thereby causes the device to maintain a substantially parallel relationship along the elongated

housing and the region of the strap between the two locations which ensures the speaker and microphone assembly are consistently positioned behind a neck and head of a vehicle seat occupant when seated.

28. The hands-free device of Claim 27 wherein the elongated housing is provided with a span structure that is integral with and spans the two locations such that the strap when present will reside between the elongated shaped housing and the span structure.

29. The hands-free device of Claim 28 wherein the span structure is configured to provide a region thereof adapted to receive a mating portion of a movable fastening unit.

30. The hands-free device of Claim 29 wherein the movable fastening unit is secured to the strap for movement along the strap,

the fastening unit is provided with a mating portion that cooperates with the span structure after the device, strap and strap fastener has been secured around pillars and the fastening unit has been secured via the mating portion to the span structure.

31. The hands-free device of Claim 25 wherein the strap fastener is a buckle.

32. A method of providing a mobile phone hands-free speaker and microphone device for use with a vehicle seat, headrest and seat/headrest support structure comprising the following steps:

(a) positioning a generally elongated hands-free speaker and microphone device adjacent the headrest support structure that structurally interconnects the seat and headrest,

(b) securing the elongated device to the headrest support structure by means of a strap that passes through a portion of the device in at least two spaced apart locations, the strap then passing around the support structure whereupon the strap is fastened to itself to thereby provide a physically stable arrangement with the hands-free device secured

between the headrest and seat to be in close proximity to a neck and head of a mobile phone user/occupant in the vehicle seat.

33. A method of providing a mobile phone hands-free speaker and microphone device for use with a vehicle seat, headrest and seat/headrest support structure comprising the following steps:

- (a) positioning a generally elongated hands-free speaker and microphone device adjacent the headrest support structure that interconnects the seat and the headrest,
- (b) securing the elongated device to the headrest support structure a means of the strap that passes through portion of the device to thereby constrained the elongated device positionally to be in a parallel configuration with the strap, the strap then passing around the support structure whereupon the strap is fastened to itself to thereby provide a physically stable arrangement with the hands-free device secured between the headrest and seat in close proximity to a neck and head of a mobile phone user/occupant in the vehicle seat.

34. A method of securing a mobile phone hands-free speaker and microphone for use with a vehicle seat, headrest and seat headrest support structure of the type comprised of a pair of pillars that structurally connect the headrest and a top of the vehicle seat, the method comprising the following steps:

- (a) positioning a generally elongated hands-free speaker and microphone device adjacent the pair of pillars such that a projection of a line coincident with a centerline of the elongated device intersects the pair of pillars in a generally perpendicular manner,
- (b) securing the elongated device to the pair of pillars to thereby constrain the device positionally to be in a parallel relationship with the centerline of the device and in a generally perpendicular relationship to the pillars, to thereby provide a physically stable arrangement with the hands-free device secured to the headrest and seat via the pillars in close proximity to a neck and head of a mobile phone user employing the device when the mobile phone user/occupant is in the vehicle seat.